URBAN REPAIR THROUGH INFRASTRUCTURE: THE TRANSFORMATION OF RAILWAY NODES IN SHANGHAI

Zengxin Wen, postgraduate student, CAUP, Tongji University, China

Xiaochun Zhang(corresponding), associate professor, CAUP, Tongji University, China

ABSTRACT

The morphological history of the railway station area in Shanghai can be divided into three phases, namely, installing, gaping and repairing eras, versus the colonization, urbanization and metropolitanization periods of the city. As the transformation of railway nodes clearly shows, it is the interaction among urban space, railway infrastructure and municipal power that creates urban forms. A chronological study of the Shanghai North Railway Station and the new Shanghai Railway Station provides insights into these processes, their morphological features and urban consequences.

Keywords: railway station, urban repair, railway infrastructure, municipal power, contested city, Shanghai.

INTRODUCTION

Railway station is not only a technological object but more of a historic result and cultural artefact. (Colquhoun A., 2008) This transportation infrastructure plays a significant role during the urban sprawl period in the new era and, at the same time, repairs the split city form left by the early 20th century. The article will reinterpret Shanghai’ s traffic nodes, namely the Shanghai North Railway Station and the new Shanghai Railway Station, through historical research and morphological approaches, and will focus on its urban results. Unlike European countries, railway has arisen in China more as a public affair rather than a private investment since late Qing dynasty. As a result, municipal power will be considered as an unneglectable mediation combining urban space and railway infrastructure.

The first part will briefly review the rise of railways and stations in Shanghai, especially about the sites of the early constructions and, the social and natural factors affecting them. Then a historical depiction will inspect the formation of the Shanghai North Railway Station and the morphological transformation around the station area, focusing on the colonist period. The rest part is about the procedural transformation of the old railway and the repairment through the new Shanghai Railway Station and Zhabei Buyecheng Project, since the incorporation of the municipality. The keynote of the comparative discussion is to frame both an empirical and theoretical analysis about the urban repair based on the relational transformation among urban space, railway infrastructure and municipal power in contemporary Shanghai.

INSTALLING: THE RISE OF RAILWAYS AND STATIONS IN SHANGHAI

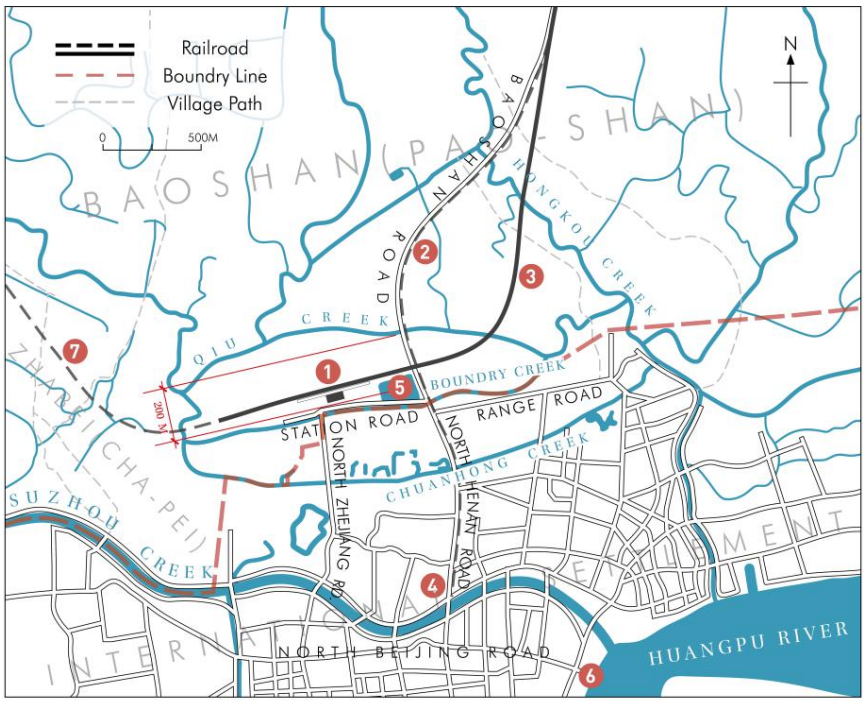
Shanghai is a city thriving on its waters and position. A myriad of rivers and creeks enabled both people and goods to breezily move around the nearby provinces and abroad. So it is not until the silt Huangpu river became a obstacle for the growing size of vessels that railway became a necessity for the colonists along the river. In 1866, the British ambassador Rutherford

Alcock requested a shuttle railroad to connect Wusong – the outer dockland for larger ships. (Denison, E., Ren, G. Y., 2008) After the proposal was rejected by the Qing court, the project was secretly completed by the British corporation, Jardine Matheson, and was also commissioned by the British engineer, George Morrison.

The very first commercial railway of China, named after its destination – Wusong, started right from the north bank of the Suzhou creek. The plot, where the Shanghai Station was in course of erection(The North China Daily News, 1876), was adjacent to the American Concession – confluence of the two main waterways, and the British Concession – more urbanized southern bank of the Suzhou creek, while far from the French Concession and the old Chinese city, both of which lied to the south of the International Settlement – a municipality incorporated by the British and American parts in 1899.

A year after the opening celebration in 1876, the "steely" road was ransomed and dismantled by the Chinese government. The traces of the transitory project was soon demolished during the expansion of the International Settlement: the southern end of the subgrade was repaved into North Henan Road and the site of the station was transferred to a local temple. (Xi, D. C.,1933) Only after twenty-two years, however, was the railway rebuilt under an appeal for national industrialization.

The first railway imported by the British is more or less a colonizational consequence, and so is the successor Songhu(Shanghai-Wusong) railway. On the one hand, even though the new line was nominally owned by the state railway corporation, the British had taken charge of the board after a considerable loan was signed between the two countries. On the other hand, the new railway had followed the left roadbed of the Wusong railway(Fig 1) and, at the same time, its convenient placement for the International Settlement.



1 - Shanghai Railway Station 2 - Wusong Railway 3 - Songhu Railway 4 - The Site of Old Shanghai Railway Station 5 - Pond 6 - The Bund 7 - Huning Railway(completed in 1908)

Fig 1 Wusong Railway, Songhu Railway and the Early Development of International Settlement and Zhabei, around 1899

However, since the northern bank was already crowded with buildings, the station had to be re-sited northward. Apart from the built environment, the west-east flows of creeks had a potential threat towards a north-south layout of the platforms and marshalling yard. As a result, the tracks were designed to cross the North Henan Road and re-install the platforms, as well as the station, into the spindly gap between the Qiu Creek and the International Settlement. This planning has moulded the basic boundary of the ulterior North Railway Station. All the construction and regeneration will have to take place in this "gap", which is merely 200 meters from the north to the south.

GAPING: THE FORMATION OF THE NORTH RAILWAY STATION AREA

Since early 20th century, Shanghai had gradually boomed into the largest commercial and industrial centre in China and experienced rapid urban sprawl. In 1908, a new railway combining Shanghai and Nanjing – the later capital city in Republican era, was completed and connected to the Songhu railway.

The old station was torn down in order to build a capacious terminus station for the new line. The old reception house relied on a minaret to mark its position among the vast fields. By contrast, the new building had an entire façade to absorb gazes from the city streets. The station architect – also a British – Mr. Barry preferred to be guided principally by "the needs of local conditions"(The North China Daily News, 1909). However, this spectacular five-storey building was undoubtedly an extraordinary imported landmark in the eyes of the local residents. Visitors could get a panorama of the building, which is noticeably different from the narrow streets around the Bund – the waterfront business quarter. After the completion of Huninghang (Shanghai-Hangzhou-Ningbo) railway in 1916, the station became the central terminus of both lines, and was renamed as the Shanghai North Railway Station.

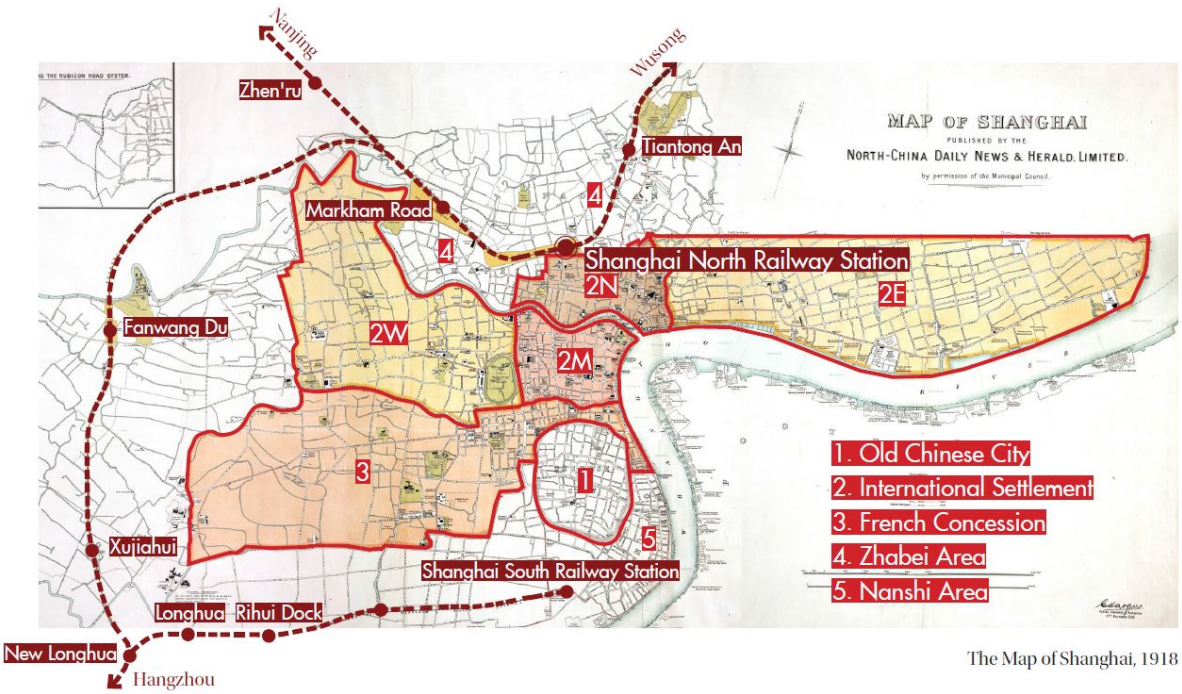


Fig 2 The circled railway infrastructure and the divided city, in 1918

Aside from the monumental motives, the façade of the building was reoriented due to the gap dilemma. Because of the increasing traffic of Jinghu(Nanjing-Shanghai) railway, more marshalling tracks had been added northward till the edge of the Qiu Creek, which was later filled up into Qiujiang Road. The station was adjacent to the boundary road, which also prevented further construction to the south edge. As a result, the designer ameliorated the traditional plan with more hybrid layouts. After the reorientation, the station was transformed from a through node to a double terminus with the west side accommodating the trains from Nanjing, while the northeast side elongating another platform for the commuter trains from Wusong.

This planning may be a last resort to the limit of plot, but the urban form was also being continually divided and split by the spatialized infrastructure. Due to the installation of the railway, the surrounding area was morphologically differentiated into four types(Fig 2). The southeastern International Settlement was remarkably distincted by its warped grid, row houses and established facilities. Zhabei(Cha-pei)[1], the agrarian Chinese settlement and markets, had benefited from the node effect and transformed into the most industrialized area within the Chinese municipality. (Henriot, C., 1993) Plots to the southwest and northeast of the station was also crawled with orderly row houses, but the narrow and sinuous roads had rarely changed. To the northwest of the station lied the slums ghettoed by immigrants and refugees from northern provinces. They also made a living from the railway, and were nominally under the jurisdiction of the Chinese government. The last and clearly fenced type belonged to the Bureau of Jinghu-Huhangyong Railway, a government department established after the fall of Qing Dynasty and later directly controlled by the Republican government in Nanjing. The buildings inside the fences were, to a great extent, randomly constructed and collaged. The gap, also like a dagger, obstructed the connectivity between the colonist and Chinese settlements, the east and west Zhabei, the southern row houses and northern slums.

1 - Station Building 2 - Garden 3 - Warehouse 4 - Platform for Huning Railway 5 - Platform for Songhu Railway
6 - New Song-Hu Station 7 - Pedistrian Bridge 8 - Auxiliary Buildings 9 - School 10 - Market
11 - The Shanxi Opera House 12 - Police Box

Fig 3 The North Railway Station and the adjacent area, around 1932

The division of the municipal power during the colonist period obliterated any possible improvements of the predicament. After the dynasty era, the local Chinese municipality had been seized by 11 authorities with different names and ranges. The Chinese was dwarfed and inevitably constrained by the Municipal Council of International Settlement. The Xinmin Road – the previous Station Road – and Boundary Road is an specific example of the contested urban space. In 1909, the railway company and the Municipal Council crammed the Boundary Creek without permission, so that the trams could reach the station directly. The Boundary Road is adjacent to, and fenced from, the Xinmin Road. The traffic here was choked up due to the narrowness of both roads. There was also much disagreement between the Chinese municipal government and the Railway Bureau. On the east side of the station, the gates were frequently opened and closed for the passes of commuter trains. In addition, the Jiaotong Road on the north side, which was planned to be a parallel arterial road, however, was eventually built as a gravel lane less than 200 metres due to the blockage of the Bureau's properties.

The fragmented form of the station area was a representation of the urbanity in Shanghai – the city extended, divided and contested. This tendency was accelerated after the two invasions by Japanese troops in 1932 and 1937. After the grievous bombing, Zhabei irresistibly became the largest squatter area in Shanghai, and even the row houses close to the International Settlement were destroyed thoroughly. The station was restored and expanded by architects Zhao Shen and Dong Dayou in 1933 and 1936. However, the constrained municipality and the increasingly tensed warfare had prevented further relocation plans or regeneration projects during the 1930s.

REPAIRING: URBAN REGENERATION PROJECTS AND NEW RAILWAY NODE BEYOND GAP

The anterior plannings had been greatly fettered by the split municipality. After the Japanese fascists took over the northern part of the International Settlement in 1937, the North Station area was under the same "government" for the first time. The Xinmin Road and Boundry Road were soon incorporated into Tianmu Road and another north-south arterial road crossing the railway was already on the blueprint before the puppet regime was overturned in 1945.

After WWII, Shanghai eventually ended its history as a colonial city and the urban space was again back to the same Chinese municipality. A master plan of the whole city had come into a real option. The Greater Shanghai Metropolitan Planning Committee was established in early 1946. The West Zhabei Regeneration Project became a matter of the utmost importance, for this district had suffered the the most devastation of the warfare(Fig 3). The Shanghai North Railway Station was, for the first time, included in the regional urban planning, which was supposed to be the largest traffic junction of national railway, commuter railway and shuttle buses.(The Greater Shanghai Metropolitan Planning Committee, eds., 1947) The station plan made by the German architect Richard Paulick had considered the complex functions of a modern station. What's more, some of the latest urban planning theories were applied in Shanghai for the first time, such as hierarchical streets, neighbourhood units and community centres.(Hou, L., Wang, Y. B., 2016) However, with the fall of the Republican government in 1949, the plan was also abandoned.

Fig 4 The West Zhabei Regeneration Project and the new north station beyond gap, in 1947

After the establishment of communist government, the slums, the choked traffic and the split fabrics continued to bother the urban planners and administrators. In early 1950s, the soviet and Chinese experts had concluded that the station should be removed 2 km westward to the site of Markham Road Station – basically a freight yard, some docks and warehouses built during the 1910s. However, as the economic focus shifted from east to west, and from urban area to rural area, the new station project was shelved in the following thirty years.

After the Reform in 1978, the new railway station gradually retrieved attention as a solution to regenerate the "rusty" Shanghai and extend it into an international metropolitan area. Approved by the State Council in 1981, the master plan for the New Shanghai Railway Station proposed that the new station would be a through node, and would have reception buildings on both sides, with the south one as a main entrance. The subsequent detailed planning regarded the project as an effective way to replace the squatter area and clearly addressed a compact layout for the central station surrounded by commercial buildings. The three-hectare new station was completed in 1987, when the old North Station also stopped operation after seventy-eight years.

Fig 5 The detailed plan of Zhabei Regeneration Project and the new Shanghai Railway Station, in 1993

However, a more extensive plan, like the one put forward in 1947, was still not practical until the properties were legalized to be transferable in 1992. With this opportunity, the district government of Zhabei proposed the plan of a business quarter adjacent to the new station, named "Buyecheng" – the city that never sleeps. A more detailed plan for the Buyecheng project came out and put into practice in 1993(Fig 4), when the project had also become one of the five CBD plans in Shanghai(Shanghai Urban Planning and Design Research Institute, eds, 2007). This project resuscitated the Great Shanghai Metropolitan Plan in 1947, but through a more contemporary form of apartment towers and office buildings. In addition, a myriad of new infrastructure was also built within the district. Metro Line 1 in 1995, Central Coach Station in 1998, Line 3 in 2000 and Line 4 in 2005 made the new station a crucial junction for different transfers.

Hitherto, the slums have been thoroughly transformed to a business quarter with integrated transportation. Although with continuous renovations, the Shanghai Railway Station is faced with new challenges of the 21st century. The platforms of different metro lines and the national railway are distinct and disconnected due to the in-coordination between the metro corporation and the railway Bureau – the administrative department survived till 2013 – during the early periods(Zhang, J. X., 2015). Similarly, the plot of the old North Station is a visible gap on the city map. This could be the reason for which the Planning and Land Administration Bureau of Zhabei District held an international urban design competition for the station area. As the first-prize plan clearly shows, the urban form is supposed to be repaired through an eastward extension of the business quarter(Fig 5). Nevertheless, the idea is there, and it seems to be a matter of time before it become reality.

CONCLUSIONS

For nearly fifteen decades, from the 1870s to the 2010s, railway infrastructure, urban space and municipal power have formed the basis for understanding the transformation of the stations in Shanghai. The station, as a crucial node on the railroad, is inevitably constrained by the

technological conditions of the tracks and facilities. The combination of political division of the city, together with the innate geographical conditions, led to the North Station becoming a gap between the Qiu Creek and the International Settlement. The uniqueness of the gap had a profound effect on the future construction and renovation of the station. It is not until the incorporation of the municipal powers that the repairment was achieved by the removal of the node to the new Shanghai Railway Station and the simultaneous urban regeneration projects.

Starting from historical materials, this paper places the train station in the historical context of the modern city and analyzes the transformation of railway nodes in the different processes of colonization, urbanization and metropolitanization. There is much to learn about the interaction between railway infrastructure and urban form, and the way it has developed and is developing, not only in different periods but also in different cultures.

NOTES

The phonetic annotation of Chinese characters are in modern Chinese pinyin, while only the names of the districts are additionally annotated in Wade-Giles, such as Baoshan(pinyin) – Pao-Shan(Wade-Giles).

Fig 1&2&3: drawn by the authors

Fig 4: See reference: The Greater Shanghai Metropolitan Planning Committee, eds. (1947)

Fig 5: See reference: Shanghai Urban Planning and Design Research Institute, eds. (2007)

REFERENCES References Colquhoun A. (2008) 'The Nineteenth Century Terminus Station as Cultural Artefact', *Collected Essays in Architectural Criticism*, 268-279 (Black Dog Publishing, London).

REFERENCES

Colquhoun A. (2008) 'The Nineteenth Century Terminus Station as Cultural Artefact', *Collected Essays in Architectural Criticism*, 268-279 (Black Dog Publishing, London).

Denison, E., Ren, G. Y. (2008) *Modernism in China: Architectural Visions and Revolutions* (Wiley, Hoboken, NJ).

Henriot, C. (1993) *Shanghai, 1927-1937: Municipal Power, Locality, and Modernization* (University of California Press, Oakland, CA)

Hou, L., Wang, Y. B. (2016) [*Richard Paulick in Shanghai: The Urban Planning and Regeneration of a Metropolis After the War*] *鲍立克在上海：近代大都市战后规划与重建* (Tongji University Press, Shanghai) (in Chinese)

Shanghai Urban Planning and Design Research Institute, eds. (2007) [*Xun Ji Qi Xin: The Development of Urban Planning in Shanghai*] *循迹启新——上海城市规划演进* (Tongji University Press, Shanghai). (in Chinese)

The Greater Shanghai Metropolitan Planning Committee, eds. (1947) [*The Report to the Urban Regeneration Project of West Zhabei, Shanghai*]*上海市闸北西区重建计划说明*, 1-7 (The Greater Shanghai Metropolitan Planning Committee, Shanghai). (in Chinese)

The North China Daily News. (1876) Opening Of The Woosung Railway To Kungwang, *The North China Daily News*, 1 July 1876, p.3.

The North China Daily News. (1909) The Railway Station, *The North China Daily News*, 22 April 1909, p. 7.

Xi, D. C. (1933) '[The Negotiations about Woosung Railway] 吴淞铁路交涉', *[The Journal of Shanghai General History 2] 上海通志馆期刊* 2, 111-138. (in Chinese)

Zhang, J. X. (2015) '[Modification of the Shanghai Railway Station] 上海火车站的改造历程', *Architecture Technique 06*, 94-98. (in Chinese)

CORRESPONDING AUTHOR

Xiaochun Zhang, associate professor, College of Architecture and Urban Planning, Tongji University, Siping Road 1239, Yangpu District, Shanghai, 200092, China

jessicazxc@tongji.edu.cn